

matter in reply to the Office Action. Claims 1-11 were rejected under 35 U.S.C. §112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. Claims 1 and 6 were rejected under 35 U.S.C. §103(a) as being unpatentable over Ueyama et al. (US 5,739,609) ("Ueyama") in view of Brunet (FR 2 614 375) ("Brunet"). Claims 12-20 were allowed.

Applicants respectfully traverse the "new matter" objection to the specification and corresponding rejection of claims 1-11 and also respectfully traverse the prior art rejection of claims 1 and 6, and request reconsideration of their application in light of the following discussion.

#### **Traversal of "New Matter" Objection and Rejection**

The invention, as recited in claim 1, comprises a magnetic bearing apparatus having a rotor shaft, a radial magnetic bearing for supporting the rotor shaft in a radial direction, a thrust magnetic bearing for supporting the rotor shaft in an axial direction, a touchdown bearing surrounding a lower end portion of the rotor shaft, a retainer member for supporting the touchdown bearing, a corrugated plate-shaped

damper disposed in an annular gap between the touchdown bearing and the retainer member, and positional offset preventing means for preventing axial positional offset of the corrugated plate-shaped damper.

The specification and drawings show three embodiments of positional offset preventing means for preventing axial positional offset (i.e., axial displacement) of the corrugated plate-shaped damper. In the Fig. 1 embodiment, the positional offset preventing means comprises a strip-like metal thin plate 10a (described on page 9 of the specification) interposed between a pair of corrugated plate-shaped damper members 8a and 8b. In the Fig. 2 embodiment, the positional offset preventing means comprises an annular convex portion 10b interposed between the pair of corrugated plate-shaped damper members 8a and 8b. In the Fig. 3 embodiment, the positional offset preventing means comprises an annular concave portion 10c formed in the retainer member 9 and in which is disposed a corrugated plate-shaped damper 8c. Thus claim 1 is generic to the positional offset preventing means shown in each of the embodiments of Figs. 1-3.

In the last response, claim 1 was amended to change "positional offset preventing means for preventing a positional offset of the corrugated plate-shaped damper" to --positional offset preventing means for preventing axial

positional offset of the corrugated plate-shaped damper--.  
The specification was similarly amended to provide clear support or antecedent basis in the written description so that the meaning of "axial positional offset" in the claims may be readily ascertainable by referring to the written description. With reference to the Fig. 1 embodiment, for example, the specification was amended on page 9 as follows:

The pair of roller bearings 4a and 4b are depressed in the radial direction by the elasticity of the corrugated strip steel plates 8a and 8b and retained over the inner circumferential portion of the retainer member 9. The corrugated strip steel plates 8a and 8b are also retained in a predetermined axial position within the annular gap G by the elasticity thereof. In addition, since the corrugated strip plates 8a and 8b are inserted into the annular gap G through the strip-like metal thin plate 10a in the axial direction, there is no axial positional offset or drop, i.e., axial displacement, and the plates are always retained in the predetermined axial position without fail. [Briefly, the] The strip-like metal thin plate 10a [is] constitutes a means for preventing the axial positional offset of the corrugated plate-like damper member.

The Examiner contends that the addition of the word "axial" introduces prohibited new matter into the disclosure. The Examiner's contention is clearly erroneous since the original specification as well as the original drawings disclose that the metal plate 10a, which is interposed between

the two corrugated strip plates 8a and 8b, prevents positional offset or drop of the plates 8a and 8b in the axial direction i.e., the up-and-down directions in the drawing. This is abundantly clear not only from the drawings, but also from the description in the original specification that "since the corrugated strip plates 8a and 8b are inserted into the annular gap G through the strip-like metal thin plate 10a in the axial direction, there is no positional offset or drop...". The phrase "positional offset or drop", by itself, supports addition of the word "axial" since the plates 8a and 8b can only drop in the axial direction. In other words, the original specification describes that since the plate 10a is inserted in the axial direction between the plates 8a and 8b, there is no positional offset or drop, and the plates 8a and 8b are always retained in the predetermined position without fail. It is self-evident that the plate 10a does not prevent radial positional offset, and therefore the only positional offset that can be prevented by means of the plate 10a is axial positional offset.

The same reasoning applies with respect to the embodiments of Figs. 2 and 3. In Fig. 2, the annular convex portion 10b is interposed between the pair of corrugated damper members 8a and 8b and inherently functions to prevent axial shifting or axial positional offset of the damper

members 8a and 8b. In Fig. 3, the annular concave portion 10c formed in the retainer member 9 prevents axial displacement or axial positional offset of the corrugated plate-shaped damper 8c. Thus each of Figs. 1, 2 and 3 explicitly disclose that the positional offset preventing means 10a, 10b and 10c prevents axial positional offset of the corrugated plate-shaped dampers. Therefore, the amendment of the specification and claims to add "axial" is clearly supported by the original disclosure and does not constitute prohibited new matter.

Even if the drawings alone provide the only support for "axial," the law is clear that applicants may amend their specification and claims to describe that which is inherently illustrated in the drawings. As pointed out by the Court in In re Wolfensperger, 133 USPQ 537, 542 (CCPA 1962):

The practical, legitimate inquiry in each case of this kind is what the drawing in fact discloses to one skilled in the art. Whatever it does disclose may be added to the specification in words without violation of the statute and rule which prohibit "new matter," 35 U.S.C. 132, Rule 118, for the simple reason that what is originally disclosed cannot be "new matter" within the meaning of this law. If the drawing, then, contains the necessary disclosure, it can "form the basis of a valid claim."

This is not to say that the Patent Office, before permitting a patent to issue, cannot at the same time enforce compliance with another requirement, found in its Rule 75(d), that "the terms and phrases used in the claims must find clear support or antecedent basis in the

description so that the meaning of the terms in the claims may be ascertainable by reference to the description." This matter is further elucidated in MPEP 608.01(o) which clearly contemplates that it may be necessary to change or add to the language of the specification so as to provide proper support for the language of "new claims." It says:

While an applicant is not limited to the nomenclature used in the application as filed, yet whenever by amendment of his claims, he departs therefrom, he should make appropriate amendment of his specification so as to have therein clear support or antecedent basis for the new terms appearing in the claims.

Applicants amended their specification and claims to describe that which is inherently illustrated in the drawings, i.e., that the positional offset preventing means prevents axial positional offset of the corrugated plate-shaped damper. There can be no legitimate question that drawings show this relationship. Thus, applicants' specification and claim amendments to fully describe this relationship do not constitute the introduction of impermissible new matter. In fact, applicants' specification amendments expressly comply with the suggestion in Wolfensperger regarding the requirement for the specification to provide an antecedent basis for newly added claim language.

See, also, Vas-Cath, Inc. v. Mahurkar, 19 USPQ2d 1111, 1118 (Fed. Cir. 1991) ("[U]nder proper circumstances, drawings alone may provide a "written description" of an

invention as required by § 112."); Ex parte Horton, 226 USPQ 697, (BPAI 1985) ("[M]oreover, even though appellant's patent drawings may not be drawn to scale, one of ordinary skill in the art would suspect that there was some reason for the positional relationships between components clearly illustrated therein. In other words, the illustrated relationships would not, in our opinion, be dismissed as accidental or arbitrary.")

Accordingly, applicants respectfully submit that the Examiner's objection to the amendments to the specification under 35 U.S.C. §132 and the rejection of claims 1-11 under 35 U.S.C. §112, first paragraph, are in error and should be withdrawn.

#### Traversal of Prior Art Rejection

Claims 1 and 6 were rejected under 35 U.S.C. §103(a) as being unpatentable over Ueyama in view of Brunet. The prior art rejection stated in the final Office Action is a verbatim copy of the prior art rejection made in the first Office Action, and the Examiner has not addressed or responded to any of the points of argument presented by applicants in the previous response. Applicants again respectfully traverse the rejection of claims 1 and 6 as being unpatentable over Ueyama in view of Brunet.



Independent claim 1 specifies that the positional offset preventing means prevents axial positional offset of the corrugated plate-shaped damper. Thus in the case of Fig. 1, for example, the positional offset preventing means 10a is interposed in an axial direction between the corrugated plate-shaped damper members 8a and 8b of the corrugated plate-shaped damper and effectively prevents axial displacement or axial positional offset of the damper. No corresponding structure is disclosed or suggested by the prior art.

As acknowledged by the Examiner, Ueyama discloses a magnetic bearing apparatus having touchdown bearings 8 and 9 supported by a retainer member 1. However, Ueyama does not disclose positional offset preventing means for preventing axial positional offset of a corrugated plate-shaped damper disposed in an annular gap between the touchdown bearings and the retainer. Neither does Brunet.

Brunet discloses a magnetic bearing apparatus having a corrugated plate-shaped damper 44 disposed in annular gap between a touchdown bearing 3 and a retainer 1 for preventing radial positional offset of the plate-shaped damper 44 -- but not for preventing axial positional offset axially of the damper 44. Insofar as pertinent to the present invention, Brunet is similar to the prior art magnetic bearing apparatus



shown in Fig. 5 of the application drawings. In both cases, no positional offset preventing means is provided for preventing a positional offset axially of the corrugated plated-shaped damper as required by claim 1. The purpose of the positional offset preventing means according to the invention is to prevent axial displacement of the damper. Insofar as can be determined, there is no disclosure in Brunet of any means for preventing axial displacement of the damper 44.

Reproduced below are enlarged copies of a portion of Fig. 1 of the present application (Fig. A) and Fig. 12 of Brunet (Fig. B).

Fig.A: Present application

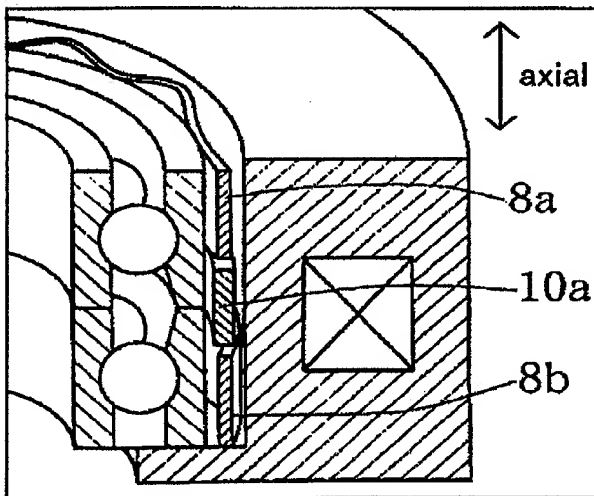
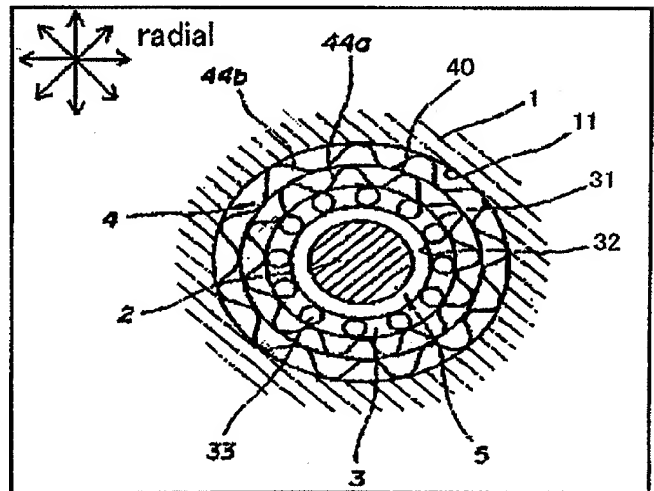


Fig.B: Cited document (Brunet)



As shown in Fig. A, the positional offset preventing means 10a prevents axial positional offset of the corrugated plate-shaped damper 8a, 8b. By contrast, as shown in Fig. B, the corrugated plate-shaped damper 44a is disposed between the outer race 31 and the inner race 32 and prevents radial positional offset of the two races 31 and 32. In the case of the present invention, by preventing axial positional offset of the corrugated plate-shaped damper, abnormal contact between the touchdown bearing and the rotor is avoided, thereby significantly reducing noise and frictional wear. No similar effect is achieved by Brunet, who discloses only means for preventing radial positional offset of the corrugated plate-shaped damper 44.

Moreover, the "positional offset preventing means" recitation of claim 1 invokes 35 U.S.C. §112, sixth paragraph and must be given the broadest reasonable interpretation in light of and consistent with the written description of the invention in the application. In re Donaldson Co., 29 USPQ2nd 1845 (Fed. Cir. 1994). Thus the positional offset preventing means of claim 1 covers the structure described in the application and equivalents thereof. When interpreted in this light, it is clear that the friction fit of the corrugated plate-shaped damper 44 with the retainer 1 (referred to by the Examiner) does not correspond in any sense to the structure described in the application as constituting the positional

offset preventing means, or equivalents of that structure. As noted above, Brunet discloses the same structure as described in the application as prior art with reference to Fig. 5 of the application drawings.

Applicants respectfully submit that the prior art rejection of claims 1 and 6 is in error and should be withdrawn.

In view of the foregoing, favorable reconsideration and entry of this amendment together with allowance of the application are respectfully requested.

Respectfully submitted,

ADAMS & WILKS

Attorneys for Applicants

By: 

Bruce L. Adams  
Reg. No. 25,386

50 Broadway - 31st Floor  
New York, NY 10004  
(212) 809-3700

MAILING CERTIFICATE

I hereby certify that this correspondence is being deposited with the United States Postal Service as first-class mail in an envelope addressed to:  
COMMISSIONER OF PATENTS & TRADEMARKS, Washington, D.C. 20231, on the date indicated below.

 Bruce L. Adams

Name

Signature

April 8, 2003

Date